MEDICAL LIBRARY

APR 27 1948

Vol. LXIV. No. 230. SUMMER, 1947.

The Bristol Medico-Chirurgical Journal

PUBLISHED UNDER THE AUSPICES OF

THE BRISTOL MEDICO-CHIRURGICAL SOCIETY.

Editor: J. A. NIXON, C.M.G., M.D., F.R.C.P.

WITH WHOM ARE ASSOCIATED

A. RENDLE SHORT, M.D., B.S., B.Sc., F.R.C.S.

W. MELVILLE CAPPER, M.B., B.S., F.R.C.S.

G. E. F. SUTTON, M.C., M.D., B.S., M.R.C.P.

E. WATSON-WILLIAMS, M.C., Ch.M., F.R.C.S., *Editorial Secretary.*

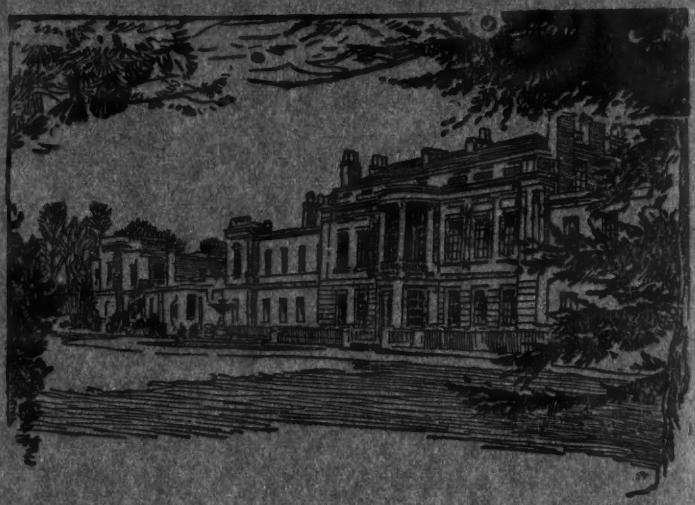
CONTENTS.

	Page
The Thirty-fifth Long Fox Memorial Lecture: Some Aspects of Aviation Medicine. By K. G. Bergin, M.A., M.D., A.F.R.Ae.S., *A.D.M.S., B.O.A.C.*	31
Penicillin in Diseases of the Ear, Nose, and Throat. By E. Watson-Williams, *M.C.*, Ch.M.	42
Cardiac Anomalies Associated with Funnel Chest. By G. E. F. Sutton, *M.C.*, M.D., M.R.C.P.	45
Reviews of Books	49
Editorial Notes	51
Non-Editorial Note	52
Obituary. Stanton Bevan Adams, M.B., Ch.B., B.Sc., Ph.D. (Brist.)	54
Meetings of Societies	55
The Medical Library of the University of Bristol	56
Publications Received	57
Local Medical Notes	58

BRISTOL:

J. W. ARROWSMITH LTD., QUAY STREET & SMALL STREET

Price Four Shillings net.



NORTHWOODS

Winterbourne, Bristol

This beautiful mansion in four hundred acres of delightful grounds and farm lands was built specially for the treatment of NERVOUS AND MILD MENTAL AILMENTS, ALCOHOLISM AND DRUG ADDICTION.

Patients of both sexes are treated.

Separate bedrooms. Private suites. Central heating. Electric light. Ample facilities for amusements and employment. Private golf course.

Thorough clinical, bacteriological and pathological examinations.

Occupational therapy. Visiting consultants. Garden and dairy produce from farm on the estate.

Cars meet trains at Temple Meads and Stapleton Road Stations. A private car or ambulance sent any distance day or night for patients.

Terms from 6 guineas a week.

TELEPHONE and TELEGRAPH: WINTERBOURNE 3118

Medical Superintendent: JOSEPH CATES, M.D., B.S. (Lond.), D.P.H. (Camb.)

The Bristol Medico-Chirurgical Journal

" Scire est nescire, nisi id me
Scire alius sciret."

SUMMER, 1947.

THE THIRTY-FIFTH LONG FOX MEMORIAL LECTURE

BY

K. G. Bergin, M.A., M.D., A.F.R.Æ.S.
A.D.M.S., B.O.A.C.

DELIVERED IN THE UNIVERSITY OF BRISTOL
ON NOVEMBER 19th, 1946

ON

SOME ASPECTS OF AVIATION MEDICINE

Even in the first World War it was realized that flying performance was not only dependent on methods of propulsion or structural stresses of air-frames, but on the limitations of the human system. Before the onset of the second World War, the Royal Air Force, appreciating this, approved the formation of the Institute of Aviation Medicine at Farnborough, where the Royal Aeronautical Establishment for aerodynamic and other aviation research is situated. The idea is to have physiological and medical research carried on by doctors in immediate contact with all flying problems as they arise. Many of the doctors are themselves experienced pilots. The Institute of Aviation Medicine proved of immense value during the war. With the advent of peace civil aviation needs similar help.

RESPIRATION

Atmospheric Changes. Problems of the respiratory system are more numerous than those of other systems by reason of the fact that flying takes place largely in atmospheric conditions differing from those encountered at ground level. At sea level atmospheric pressure is 760 mm. Hg. or 14.6 lbs. to the square inch. At 20,000 ft. the atmospheric pressure is 350 mm. Hg. or 7 lbs. to the square inch, and at 40,000 ft. 141 mm. Hg. or 3 lbs. to the square inch. The atmospheric pressure decreases with height, and the percentage composition of alveolar air also changes, because the partial pressure of water vapour and carbon dioxide remains constant through very great variations of pressure, thereby affecting the ratio of the other gases in the lungs. For example, when the partial pressure of inspired oxygen is two-thirds of that at sea level, the partial pressure of alveolar oxygen is one-half ; when the partial pressure of inspired oxygen is one-seventh, that of alveolar oxygen is one-twenty-third, and at a height of 50,313 ft., where the pressure of inspired oxygen is 86 mm. Hg., the pressure of alveolar oxygen is nil.

Various compensating mechanisms come into play during ascent to a decreased atmospheric pressure. In aviation the ascents to height are rapid and do not permit of the compensatory adjustments which occur in slow ascents such as in mountaineering: in these cases there is an increase in the number of red blood cells, increased ventilation rate and changes in the tissue oxidase system. The desirable objective in flying is to maintain the alveolar oxygen at a pressure of 70–100 mm. Hg.

Oxygen Systems. This result is obtained by supplying oxygen to the aviator by a number of different systems:

The "Free Flow System" consists of a reservoir of oxygen under pressure, a delivery pipe and an oxygen mask allowing a steady flow of oxygen to the pilot, adequate for his use at all altitudes. This system is wasteful of oxgyen and should only be used in the single-seater, short endurance aircraft. Its great virtue is its simplicity.

In the "Reservoir (or Rebreathing) System" the oxygen passes first into a low-pressure reservoir fitted with a rebreather bag, into which the user expires. Unused oxygen in the exhaled air is, therefore, available for future use. By means of a system of valves the pilot only utilizes such oxygen as he actually requires for each particular height, with great economy in oxygen. Such systems are used on all heavy types of aircraft and in the majority of civil airlines to-day.

"Pressure Breathing." These systems fail to deal with the problems of oxygen supplies at heights greater than 33,500 ft., and the presence of German reconnaisance aircraft at heights

exceeding 40,000 ft., early in 1943, called for a lighter device than a pressurized cabin. Over 40,000 ft. pure oxygen is insufficient to maintain adequate alveolar oxygen pressure. Oxygen had to be introduced at a positive pressure by means of a reservoir designed as a waistcoat giving oxygen at the pressure required for these heights. In practice this was found to be 8 in. of water or 15 mm. of mercury. Such an apparatus was designed and used with great success in 1942–43, increasing the upper altitude tolerance of pilots from 33,000 to 45,000 ft. The use of the apparatus needed practice, but no particular difficulties were encountered. It had to be understood, for example, that in this system expiration became an *active*, and inspiration a *passive* process, contrary to normal breathing; and while a good fit was necessary to avoid leakage, care had to be taken not to interfere with the venous return. It was found advantageous if users of pressure breathing apparatus breathed pure oxygen for thirty minutes before flying.

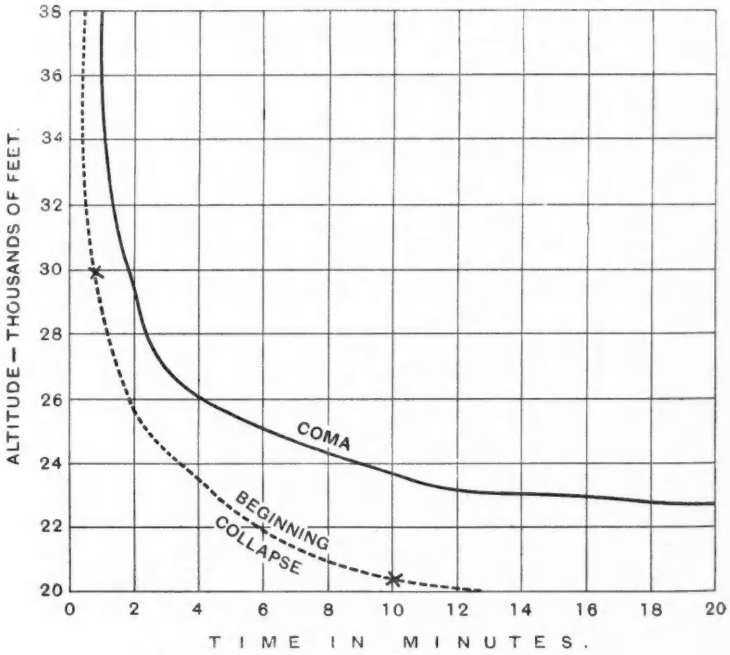
In " Pressure Cabins " air is introduced by means of a mechanically driven impeller so as to maintain a constant pressure in the cabin of the aircraft irrespective of the pressure outside. If air is introduced at an additional pressure of approximately $5\frac{1}{2}$ lbs. to the square inch, sea-level conditions can be maintained in the cabin when the aircraft is at 13,000 ft. and at 25,000 ft. the air pressure inside the cabin equals that outside at 8,000 ft. Attention must be paid to the maintenance of the correct temperature and humidity of the air, regular changing of the air in the cabin, and the elimination of unpleasant and obnoxious odours. Pressure systems have largely overcome these obstacles, and the aircraft which now fly the Atlantic and other long distances are so fitted that a passenger flies without discomfort at 30,000 ft. or more. The fatigue experienced in long flights is much less in pressurized than non-pressurized cabins.

Explosive Decompression. When pressurized cabins were first introduced, concern was expressed as to what might happen to the occupants of such a cabin if, from enemy action or other cause, the pressure suddenly fell; it was feared that serious injury to the human organism might result. Explosive decompression tests were conducted with special experimental decompression chambers. It was found that, apart from transient symptoms, no serious harm occurred provided oxygen was readily available for the subsequent anoxia. Medical officers who were subjected to these tests noted the following symptoms: a feeling of severe pressure on the ears, which quickly disappeared if the Eustachian tubes were patent; abdominal distension, relieved by the expulsion of flatus; slight dyspnoea and cough with mucous expectoration, and transient retrosternal pain. All these symptoms suggest slight trauma to the pulmonary alveoli, but no after effects have been discovered

and many thousands of explosive decompressions have been carried out without trouble. In the experimental cases the test ascents were equivalent to an actual ascent of 35,000 ft. per second.

Anoxia. The effects of inadequate oxygen supply may be briefly mentioned. The brain is the first organ to suffer, sensory acuity and cerebral activity being diminished. There is euphoria, with a lack of judgment and of self-criticism not unlike the early stages of alcoholic intoxication. Visual acuity is diminished and above all the sensitivity of the rods, which decreases night vision. The period required for dark adaption, in a normal person thirty minutes, is greatly lengthened, and fixation and convergence by the ocular muscles are reduced. Hearing is impaired, the temperature falls, there is an increased liability to air sickness, the pulse rate is raised and, lastly, signs of neuro-muscular weakness set in, ending in collapse and unconsciousness. Several factors influence the onset

FIGURE 1.



Effects produced by complete deprivation of oxygen with varying height—time relationships.

and severity of anoxia, namely, height, rate of ascent, duration of exposure, individual tolerance, physical fitness, bodily activity, psychological state (*e.g.* whether frightened), and lastly, the presence of organic disease. The time taken for a man to collapse following complete deprivation of oxygen is indicated in Fig. 1, which shows that at 20,000 ft. a man will begin to collapse in about ten minutes, whereas between 30,000–40,000 ft. it is unlikely that he will remain conscious for more than sixty seconds.

All cases of anoxia respond immediately to breathing 95 per cent. oxygen with 5 per cent. carbon dioxide. The carbon dioxide is important first to increase the pulmonary ventilation; secondly because it induces a peripheral vaso-constriction and a cerebral vaso-dilation; thirdly because it increases the oxyhæmoglobin dissociation in the tissues. Lastly, a small quantity of carbon dioxide is essential for cortical function.

VISION

Night vision assumed great importance in the war. At first our own night fighters required it for defence against the German attacks on this country; later it was essential, when the circumstances were reversed, for the allied night-bombing offensive. Vision at night is achieved by means of the rods, of which the greatest concentration is found immediately adjacent to the macula about 10 to 15 degrees from the centre.

Visual purple essential for vision by night is produced in the presence of vitamin A and in the absence of light. Full activation of visual purple is attained after thirty minutes dark adaptation and results in over a thousandfold increase in sensitivity of the rods. Dark adaption can be lost by the briefest exposure to light; so a considerable number of experiments was carried out during the war to determine what light was least likely to interfere with visual purple, the idea being to use this colour for essential lighting of instruments, etc. Ultimately an orange-red, standardized by the National Physical Laboratory, was adopted. A pilot who has been using orange-red lighting in the cockpit for some hours can be assured of almost instantaneous full night vision on looking outside the aircraft. It is interesting to note that the blue lights, as used at the entrance to air-raid shelters at the beginning of the war, were clearly visible from the air at night. Lack of oxygen greatly diminishes night visual acuity and, as the table shows, there is 40 per cent. decrease at a height of only 16,000 ft. (Fig. 2). The range of night vision, of course, varies according to the intensity of light available, which itself depends upon weather conditions, stars, moon, etc. On a dark starlight night an aeroplane can be seen at 700–900 ft., whereas on a night with a full moon reflected over cloud the range is increased to between 5,000–7,000 ft.

FIGURE 2.

DECREASE IN NIGHT VISUAL ACUITY WITH VARYING DEGREES OF ANOXIA.

Altitude in feet.	Average per cent. decrease in range of night vision if O_2 is not used.
4,000	5
6,000	10
8,000	15
10,000	20
12,000	25
14,000	35
16,000	40

Since the greatest concentration of rods is 10–15 degrees from the centre of the retina, optimum night visual acuity is obtained by off-centre viewing and this constituted an important part of the training of aircrews. Many a night fighter has been spotted by utilization of this principle. It is also important to teach methodical survey of the field of search. A simple geometrical plan was devised by which a person could survey the whole area within thirty seconds in a methodical manner without leaving any part unsearched.

Measurement of night visual acuity has been attempted, but to date no satisfactory method has been found.

Caffeine has a definite stimulating effect upon night vision, but the results are difficult to assess at present. Benzedrine sulphate had a generally stimulating effect, but night vision was not noticeably improved.

Rod Scotometry. Varying sized scotomata have been observed in different cases of night visual deficiency. In the normal subject, a central scotoma approximately 4 degrees across will be found in the macular area where no rods are present. Larger scotomata will be observed in cases where night vision is deficient by reason of conditions such as vitamin A deficiency, alcohol, smoking, fatigue or organic disease.

Ariboflavinosis. An interesting condition was observed in 1942 in pilots and aircrews whose duties kept them for long periods subjected to a high intensity of light, as when flying over the sea, snow or desert. The symptoms noted were excessive lachrymation, photophobia, eyestrain and a gritty sensation under the lids. Associated symptoms included headaches and decreased visual acuity. Careful ophthalmic examination with a slit lamp revealed one feature common to all cases, namely, the invasion of the cornea

by leashes of new and abnormal blood vessels. Now the cornea receives its oxygen supply not directly from the blood stream, but by means of riboflavine. It was conjectured that if there is deficiency of riboflavine, a compensatory vascularization of the cornea occurs. It was, therefore, decided among other things to increase the riboflavine intake of all sufferers, and at the same time to reduce, as far as possible,the direct impact of bright light on their eyes, since riboflavine is destroyed in the presence of light. The normal riboflavine requirements of an adult are 2–3 mgm. daily, and it was found that a daily intake of 5 mgm. cleared the condition up in about six weeks. Subsequent eye examinations revealed a gradual retraction and diminution in the new blood vessels and a complete restoration of normal visual function. Later investigation has thrown doubt on the reliability of corneal vascularization as evidence of ariboflavinosis. Care must be taken to rule out other deficiencies which, if severe, cause corneal vascularization. However, the condition was important and the results of treatment with riboflavine were satisfactory.

EAR, NOSE AND THROAT.

Otitic Barotrauma, alternatively known as traumatic aerotitis, was a grave cause of disability among aircrew during the war. The mechanism of the Eustachian tube in equalizing the pressure in the middle and outer ear is well known. When the external atmospheric pressure is lowered there is a passive opening of the orifice, but the reverse does not hold true. That is to say, when it is required to open the tube during a rise of external atmospheric pressure, active voluntary movement is necessary. Failure to equalize may be due to rapid descent as, for example, when an aircraft is falling down out of control or is diving steeply to avoid attack : a man may be asleep, or unconscious in a descending aircraft and so does not perform the necessary voluntary movements. Or there may be oedema of the tube due to infection, chronic obstruction or stenosis from infection or trauma. When the Eustachian tube fails to open and to equalize pressure in middle and outer ears, the tympanic membrane takes the strain with varying results. The symptoms of the condition are pain and deafness with occasional tinnitus and vertigo. Four clear cut stages may be observed : (1) a slight indrawing of the membrane ; (2) definite indrawing of the membrane with engorgement of the blood vessels ; (3) ruptured vessels, usually in the postero-inferior quadrant ; and (4) rupture of the membrane. In all cases there is inability on the part of the patient to inflate the ear through the Eustachian tube. The condition is largely preventable and active measures may greatly diminish its incidence. First, no one should be permitted to fly at height who has a cold. Admittedly many do so without harm, but by far the greatest number of cases were caused by ignoring this

rule. Secondly, persons should be instructed how to inflate the Eustachian tube voluntarily (Valsalva's manœuvre). When once the condition is established, several methods of cure may be tried: (1) Either re-ascent in an aircraft, or, more simply decompression in a decompression chamber, immediately relieve the condition; (2) Inflation by Valsalva's method (not always possible if oedema or other conditions are present), by Politzer's, or by Eustachian catheterization; (3) Myringotomy with a fine-pointed hypodermic needle. The relief of pain and deafness is dramatic and sudden: the membrane returns to its normal position, and usually, only a spot of mucus remains to mark the point of puncture. If the above methods fail, or the condition has been present too long, nothing but masterly inactivity will restore a damaged drum. This may take from forty-eight hours in a mild case to seventeen days in a severe one.

Aero-Sinusitis. The main symptom of this condition is acute pain over the affected sinus. The affected side is often tender to touch and opaque to X-rays. The cause is uncertain: it is probably a blocking of the sinus opening causing imprisonment of air within a closed cavity. A sudden fall in external pressure results in ischaemia which, when followed by engorgement, causes a sub-mucosal hæmorrhage. This, in turn, produces stripping of the mucous membrane and the formation of a polyp-like swelling. The treatment consists of radiant heat, adequate drainage and vaso-constrictors.

Aviation Deafness. Audiometric investigations on a number of aircrew show deterioration in auditory acuity, particularly in the range of 4,096 double vibrations per second. Aircraft noises consist of a number of primary tones together with over-tones and under-tones, but the greatest intensity is at 110–115 d.v./s. Conversational level ranges between 300–3,000 d.v./s. Otosclerosis has been demonstrated in some patients and nerve trauma in others. The effects of repeated exposure tend to be cumulative, producing permanent alterations in the higher frequency loss. Deafness tends to get worse with age and with increased flying time.

The Lecturer next dealt with the effects of speed and acceleration. Speed seems not to affect persons in an enclosed cabin. Acceleration may be linear or rotational: only the latter is of importance. The rate of rotation determines the centrifugal force, and this may become so great that the circulating blood is driven into the legs and feet, with resultant anoxia of the brain and loss of consciousness—" black-out ". Suitable posture in the aircraft, and pressure suits which raise the external pressure on the legs, diminish these effects. Decompression sickness and air sickness present no special features. Attention must be given in selecting aircrew to psychological as well as physical conditions. Fatigue in flying is important now that long flights are frequent. Elimination of noise and vibration, adequate oxygen supply and correct posture help to avoid undue fatigue. He continued:

TRANSPORT OF INFANTS AND INVALIDS.

The majority of long-distance flying is done between 10,000 and 30,000 ft. so as to obtain the advantage of settled meteorological conditions and higher operating efficiency for the aircraft: at these heights, changes in atmospheric pressure are important. At heights of less than 10,000 ft., many of the problems discussed do not arise.

Infants. Experience shows that, on the whole, infants tolerate flying better than adults. Thus, they are less susceptible to air sickness and to minor decrease of anoxia. A word of warning is necessary, however: if symptoms of anoxia *do* manifest themselves, deterioration is more rapid than in adults unless oxygen is given immediately. The simplest method to ensure that a child equalizes the pressure in the middle and outer ear during descent from height is to insist that it is fed at this time.

Pregnancy. There appears to be no greater risk of precipitating labour in air travel than in other forms of transport, except in the roughest possible weather, a risk which the passenger and public carrier must decide for themselves. Pregnant women are usually carried up to and including the eighth month of pregnancy in this country; in America up to within seventy-two hours of the expected date of delivery; most internal American airlines can land at a nearby airfield if the need should arise.

Medical Contra-indications. Certain cases should not travel by air. The majority consists of those affected by respiratory and cardiac diseases. Pneumothorax is contra-indicated for two reasons: the reduced pulmonary ventilating area would result in an earlier onset of anoxia than would otherwise be the case, and the lowered atmospheric pressure at height results in mediastinal displacement. In pulmonary tuberculosis, the increased liability to hæmoptysis from lowered atmospheric pressure is a contra-indication to flying. Those suffering from pleural effusions, heart disease, anaemia and leukaemia and thyrotoxicosis are barred because of the decreased adaptability to the effects of lowered alveolar oxygen tension. Many other individual cases require special consideration. Thus, peptic ulcer with a previous history of hæmatmesis should be regarded with reserve and each case judged on its merits.

Specific Fevers. The advent of air travel has greatly complicated the problem of international quarantine measures and carriage of such diseases. Thus, a person may be in a yellow-fever endemic area one day and in a clear area the following day. This has raised acute international problems for the International Convention of Aerial Navigation, to which all countries subscribe and which regulates the preventative measures to be taken by all travellers by air.

BIBLIOGRAPHY.

Armstrong, H. G., *Principles and Practice of Aviation Medicine*, Williams & Wilkins, Baltimore, 1939.

Armstrong, H. G., and Heim, J. W., "Effects of Repeated Daily Exposures to Anoxaemia," *Journ. Aviation Med.*, 1938, ix, 92–96.

Barcroft, J., "The Respiratory Function of the Blood. Part 1," *Lessons from High Altitudes*, Cambridge (Eng.) Univ. Press, 1925.

Bauer, L. H., *Aviation Medicine*, Williams & Wilkins, Baltimore, 1926.

Barach, A. L., McFarland, R. A., and Seitz, C. P., "The Effects of Oxygen Deprivation on Complex Mental Functions," *Journ. Aviation Med.*, 1937, viii, 197–207.

Bert, P., *La Pression Barométrique*, Masson et Cie, Paris, 1878.

Benzinger, T., "Das Verhalten der Alveolarluft bei abnehmendem Sauerstoffgehalt der Einatmungsluft and und bei Zasatz von Kohlensaure," *Luftfahrtmed*, i, 326–337, 1937.

Bills, A. G., "Blocking in Mental Fatigue and Anoxaemia Compared," *L. Exp. Pyschol.*, 1937, xx. 437–452.

Cusick, P. L., Benson, O. O., and Boothby, W. M., "Effects of Anoxia and High Concentration of Oxygen on the Retinal Vessels," *Proc. Staff Meet., Mayo Clin.*, 1940, xv, 500–502.

Dickson, E. D. D., McGibbon, J. E. G.. and Campbell, A. C. P., "Acute Otitic Barotrauma," *Laryng. & Otol.*, 1944, lix, 267.

Dill, D. B., and Zamcheck, N., "Respiratory Adjustments to Oxygen-lack in the Presence of Carbon-Dioxide," *Amer. Journ. Physiol.*, 1940, cxxix, 47–52.

Diringshoefen, Heinz von, *Medical Guide for Flying Personnel*, trans. by V. E. Henderson, Univ. of Toronto Press, Toronto, 1940.

Diringshoefen, H. von, and Hartmann, H., "Altitudes Effects of Carbon Monoxide," *Lufttahrt Med.*, 1935, xii. 121, 23.

"Diet, Oxygen Want and High Flying," *Brit. Med. Journ.*, 1940, i, 57.

Feldman, J. B., "Practice of Dark Adaptation," *Arch. Ophth.*, 1938, xix, 882–901.

Gillespie, R. D., *Salmon Lectures*, New York, 1941.

Grow, M. C., "A Study of Fatigue," *Mil. Surgeon*, 1936, lxxviii, 103–119.

Hargreaves, J. M., *An Outline of Otolaryngology as Applied to Aviation Medicine* (Revised), School of Av. Medicine, Randolph Field, Texas, 1939.

Junker, H., "Influence of Heterophoria on Binocular Depth Perception," *Arch. f. Ophth.*, 1940, cxlii, 367–388 (*Abstract Arch. Ophth.*, June, 1942).

Kronfeld, A., "Eine experimentall-psychologische Tauglichkeitsprüfung zum Flugdienst," *Ztschr. f. angew. Psychol.*, Leipzig, 1919, xv, 193–235.

Livingstone, P. C., *Manual*, ccxlvii, No. 6306, p. 37.

Lythgoe, R. J., "Mechanism of Dark Adaptation; Critical Résumé," *Brit. Journ. Ophth.*, 1940, xxiv, 21–43.

Mandelbaum, J., "Dark Adaptation," *Arch. Ophth., New York*, 1941, xxvi, 203.

Marshall, G. S., "Respiration in High Flying, *Proc. Roy. Soc. Med.*, 1937, xxx, 9–20.

McFarland, R. A., and Barach, A. L., "The Response of Psycho-neurotics to Variations in Oxygen Tension," *Amer. Journ. Psychiat.*, 1937, xciii, 1315–1341.

McFarland, R. A., "The Psychological Effects of Oxygen Deprivation (Anoxaemia) on the Human Behaviour," *Arch. Psychol.*, 1932, No. 145.

McGibbon, J. E. G., *Journ. Laryn. and Otol.*, 1942, lvii, 344–350.

McFarland, R. A., and Evans, J. N., "Alterations in Dark Adaptation under Reduced Oxygen Tensions," *Amer. Journ. Physiol.*, 1939, cxxvii, 37–50.

Newman, H., and Fletcher, E., "The Effects of Alcohol on Vision," *Amer. Journ. Med. Sci.*, 1941, ccii, 723–731.

Poppen, J. R., "Aerial Equilibration," *Journ. Aviation Med.*, 1934, v, 96–103.

Ruff, Siegfried, and Strughol, Hubertus, *Compendium of Aviation Medicine* (translated under the sponsorship of the Committee on Aviation Medicine of the National Research Council).

Rook, A. F., and Dawson, D. J., "Hypotension and Flying," *Lancet*, 1938, ii, 1503.

Schwichtenberg, A. H., "The Evaluation of Orthoptic Training for Aviators," *Amer. Journ. Ophth.*, 1938, xxi, 980–990.

Schubert, G., *Physiologie des Menschen im Flugzeug*, Springer, Berlin, 1935.

Schroeder, R. W. (*see* McFarland, R.A.), "The Psychological Effects of Oxygen Deprivation (Anoxaemia) on Human Behaviour."

Young, C. A., *Hypotension in Aviation War Medicine*, p. 375, Philosophical Library, New York, 1940.

PENICILLIN IN DISEASES OF THE EAR, NOSE, AND THROAT

An introduction to a discussion by the Society on Wednesday, March 12th, 1947.

BY

E. WATSON-WILLIAMS, M.C., Ch.M.,

Surgeon in charge, Ear, Nose and Throat Department, Bristol Royal Hospital.

Lecturer in Diseases of Ear, Nose and Throat, University of Bristol.

THERE is no question that, in such serious conditions as septicaemia or suppurative meningitis, the value of penicillin is established. In this paper, however, I shall not attempt to cover the whole subject of the uses of penicillin: rather I hope to indicate the use of this preparation in the common diseases of the ear, nose and throat.

EAR

Otitis externa. Penicillin drops applied to the external meatus appear to me to have no value at all. In otitis externa it must be almost impossible by such means to maintain a sufficient concentration of the drug in contact with the infected tissues. At all events, among some thirty cases I have seen none in which it has given any good result: and in several I had the impression that the applications were actually irritating.

Otitis media, acute. Still less can penicillin drops be expected to achieve anything in otorrhea due to otitis media. Consider for a moment the anatomical features. In the normal ear there is an open passage, the aditus, between tympanum and mastoid antrum; in otitis media, by the time there is sufficient pus in the former to bulge the membrane it is inevitable that the infection has *already* reached the antrum—all clinical experience supports this expectation. Once this has occurred, or at least before perforation takes place, the mucosa of the aditus, antrum and cells swells up, obliterating the air spaces. How can it be possible that *any* bactericidal agent placed in the meatus can penetrate the perforation, often minute, pass up between the folds of swollen mucosa to the attic, and back through the aditus to the antrum and cells? Still less, how can it possibly reach the bacteria in the mucosa of these cells, and in effective concentration?

On the other hand the bacteria responsible for otitis media are almost without exception penicillin-sensitive. Penicillin given by intra-muscular injection will abort otitis media in a manner simply

miraculous. I usually give 20,000 units three-hourly for the first twenty-four hours and half this dose for the next four to eight days; it is seldom required after the fifth day. I have used it now in over one hundred and seventy cases, with hardly a failure. Indeed, my house surgeon recently complained that during five months he had only seen three cases that needed opening of the mastoid. Even where there is extensive post-aural oedema, or a periosteal abcess, an incision is all that is usually needed if penicillin is given. One must, of course, be guided as to the need for operation exactly as if no penicillin is being used. If either pain *or* tenderness *or* fever are not improving forty-eight hours after treatment has been started it is probable that an actual mastoid abscess exists which the drug is not reaching, and operation may be required.

Miss Z . . . a lady of forty-eight, matron of a county hospital, had a left acute otitis media after influenza; she had never previously had any ear disease. Myringotomy was performed and full doses of sulphathiazole were given. After two days, pain and fever were still present, so penicillin was started. On the fifth day the pain and fever which had improved a little were again severe. I was asked to see her, as her own surgeon had urged her to allow the mastoid to be opened and she wanted to avoid an operation. I could only concur with his advice: the operation was performed and pus under pressure was found in the antrum—there was no extension of the disease (no "complication"): recovery uninterrupted. The amount of pus was an unusual feature in the case just mentioned: my experience of cases treated with penicillin is that if an operation becomes necessary there is usually little or no pus—rather a puzzling feature until one becomes used to it.

NOSE

Local Application. I have not found penicillin ointment so useful as sulphonamide preparations: it is true that I have treated only a few cases with penicillin. I have not used penicillin as a nasal spray: it is a method of some value, since after spraying the nose with ten per cent. penicillin one can demonstrate penicillin in the serum. But if a systemic effect is required intra-muscular injection is the only method worth considering: for severe sinusitis this is of great value. I shall be interested to hear what results others have obtained by inhalation methods in lung abscess, etc.

Acute sinusitis. The great majority of cases of acute sinusitis resolve without the need for operation and I cannot say whether the drug materially influences the course of events. Certainly patients for whom it is used seem to get rid of pain and fever more quickly than used to be the case: but most of these cases occur as complications of influenza, a disease which varies very much from time to time in the severity of its complications—which makes it difficult to reach a conclusion as to the value of any particular mode of treatment except after considerable experience.

Chronic sinusitis. I have used penicillin on a number of occasions when washing out chronically diseased sinuses. The three preparations used were a cream ; a jelly—I believe made with tragacanth ; and a glycerine-and-bismuth-subnitrate paste. I cannot say that I have found the addition of penicillin has had any effect at all. In three out of forty-one cases the symptons were improved for a few weeks but did not respond a second time. In some of the others a short improvement was noticed, but this is not uncommon whatever preparation is used. It is obviously a matter of great difficulty to get any effective concentration of penicillin into the sinuses in such a form that the drug will remain where it is placed for more than a very few hours.

THROAT

Pencillin lozenges are becoming quite popular : almost everyone with a sore throat expects them. In simple acute streptococcal tonsillitis such lozenges appear to have definite value. The technical difficulties have been considerable ; the lozenge base must be sufficiently soluble to set free the penicillin fast enough to reach an effective concentration in the saliva, yet not so soft that the lozenge dissolves in a few minutes. One lozenge an hour is required and it should take an hour or nearly an hour to dissolve.

And here we meet another trouble, stomatitis. I have seen quite a number of cases now, with painful, pink, sore tongue and lips. Some maintain the effect is due to the composition of the lozenge base ; others that penicillin alters the natural flora of the mouth and so exposes the mucous membrane to unbalanced action of penicillin-resistant organisms. Against this, one does not get this trouble when giving penicillin by injection. I have been led to believe that penicillin itself is irritating to the mucous membrane. The lozenges should not be used for more than three days. My personal feeling is that it is a mistake to use penicillin in this indiscriminate fashion : most of the cases will respond just as rapidly to old-established methods of treatment. Where penicillin lozenges appear to have definite value is in a case of Vincent's Angina, which does not rapidly respond to Mist. Arsenicalis. I have had five such cases, in each of which the throat infection responded rapidly to lozenges. On the other hand, it is useless to rely on the lozenges alone. I have seen four patients whose ulceration progressed unhindered while they were using lozenges. Three cleared up at once on arsenic : the fourth was a syphilitic who had been treated with penicillin injections, followed by bismuth ; he had obvious bismuth stomatitis—blue line on gums and round a sloughy ulcer in the right tonsil. The ulceration was steadily progressing while he used penicillin lozenges : I referred him to the surgeon who had been giving the bismuth and have not heard of subsequent progress.

CARDIAC ANOMALIES ASSOCIATED WITH FUNNEL CH EST

BY

G. E. F. SUTTON, *M.C.*, M.D., M.R.C.P.

Physician to the Bristol Royal Hospital

EVERY practitioner has met with patients who have manifested varying degrees of funnel chest, and in view of the frequency of subjective symptoms, together with systolic murmurs and other cardiac anomalies in this condition, the question of organic heart disease is sure to have arisen with regard to some particular case. The literature on this subject shews conflict of opinion between various authorities. Dr. A. Lincoln Brown[1] defines Pectus Excavatum as :

" That deformity of the thoracic cage which is characterized by a funnel-shaped depression of the sternum, the apex of which is located at approximately the level of the junction of the xiphoid with the body." He quotes the report on a patient which was written in Latin by J. Brauhin in 1600. I have translated this somewhat freely as follows :

" Congenital internal bending back of the sternum and ribs as the cause of difficulty in breathing.

" My father showed me a boy seven years old at the house of a nobleman of Andlau, whose ensiform cartilage and other parts of the chest bone, together with the ribs, was bent back towards the internal parts, so that a great hollow appeared there. The diaphragm, he pointed out, seemed to contract those parts to a great extent. Right from his birth this boy had laboured under this serious physical drawback, breathing with difficulty and having an obnoxious cough. When we saw him he was very seriously ill, so much so that suffocation seemed imminent, and a viscid sputum was being brought up. The lady of Andlau said that she had a nephew younger than the other boy who suffered from the same condition and whose life was in similar danger."

Brown states that the heart tends to be fixed near the midline by the diaphragmatic attachment of the pericardium, but it may be displaced either to the left or right ; though he is of the opinion that the greatest cardiac embarrassment is caused when the heart is fixed near the midline and is thus directly compressed by the depressed sternum. He gives these theories of causation : (1) Intra-uterine pressure, as from a knee or elbow pressing on the foetal sternum ; (2) Intra-uterine overdevelopment of the corpus sterni ; (3) Arrested development of the sternum ; (4) Rhachitic influence on the development of the sternum and the entire thoracic cage ; (5) Obstruction of the air passages, especially by tonsils and adenoids ; (6) Genetic or ; (7) Neurological factors.

He dismisses the intra-uterine theories as fantastic, and considers that funnel chest has never been recorded in an authenticated case of rickets, and further that tonsils and adenoids are unlikely causes as

funnel chest is so unusual in such cases. Genetic factors are the most important, and he quotes Nowak who found that out of 30,000 Viennese school-children, twelve (0.04 per cent.) were afflicted with this condition and all had had indications of it since birth. Out of one hundred and six individuals of the families who were examined, forty-one had it (38 per cent.) : twenty-four males and seventeen females. Brown then records two cases both of which were greatly relieved by operative measures. One had a systolic murmur at the apex : the other had a loud pulmonary systolic murmur on expiration as well as a split pulmonary second sound, and complained of dyspnoea on exertion. The family history in this case revealed that the father, brother and sister also had a less degree of funnel chest. Brown states that the release of diaphragmatic attachments to the medial aspect of the sternum was the greatest single factor in the correction of the deformity. He gives the indications for the operation as follows : (*a*) prophylactic ; (*b*) cosmetic in women ; (*c*) when embarrassment in one form or another results from the condition.

Richard H. Sweet[2] records successful operations on two sisters. The older, a girl of fourteen, had dorsal scoliosis as well as marked funnel chest, and she suffered from severe attacks of paroxysmal tachycardia : there was a harsh systolic murmur at the apex and the pulmonary second sound was split. The younger girl aged five also had some scoliosis in addition to the funnel chest : in her case there was a double mitral murmur of moderate intensity as well as a loud systolic murmur heard all over the praecordium, which was accompanied by a thrill, and became louder as it was traced to the left to reach a maximum intensity under the angle of the scapula.

In describing the case of a healthy twenty-six year old airman with marked funnel chest, Manning[3] again records an apical systolic murmur. He states that severe deformities of the spine tend to result in pulmonocardiac failure. In support of this statement he quotes Kerwin who concluded that " The significant pathological lesions are the result of pulmonary hypertension which eventually leads to right-sided heart failure, and appears to be due to mechanical interference with respiratory function."

On the other hand, William Evans[4] records sixteen cases, all of which had been referred to the cardiac department of the London Hospital because of the suspicion of heart disease. In every patient a systolic murmur was present, but in none was there any evidence of heart failure. He suggests that the murmur might be produced by the impact of the heart on the sternal bulge. He states further that X-ray reports have been misleading in that they have failed to distinguish between true and what was only an apparent enlargement brought about by the displacement. He insists that the symptoms were never the result of heart enlargement or embarrassment, but were the direct outcome of the physical inactivity or mental anxiety, resulting from the unwarranted invalidism. He quotes Lang as having found depression of the sternum in 3.5 per cent. of children in the first year of schooling. It is interesting to compare the evolutionary theories which he records, and also to contrast the opinion which he deduces, with that of Brown as given above : (1) Abnormal length of the ribs (Flesch,

1873); (2) Occupational factors, *e.g.* cobblers (Laënnec, 1819); (3) Arrested development of the sternum (Ebstein, 1882); (4) Abnormal postural development in a child of slender build arising from faulty posture (Kuhns, 1931).

Evans states that in his cases there was no evidence that they had resulted from congenital maldevelopment and in all it appeared in early childhood, when it might have been the outcome of a disturbance of the mechanism of respiration.

Although Carey Coombs did not mention funnel chest, he recorded four cases of fatal cardiac failure occurring in persons with angular deformity of the spine. Autopsy was performed on two of these patients and no other lesion was found. In his commentary he points out that in every case cardiac symptoms ensued shortly before death. Three influences, he says, are blamed for the heart failure: (1) Aortic kinking; (2) Inadequate air space in the lungs, and (3) Restriction of the diaphragmatic excursion. "Whatever the explanation," he concludes, "it is clear that there is a real danger of untimely death from cardiac failure in the victims of angular deformity of the spine".

As I had not then read Carey Coombs's[5] report, I was frankly puzzled when I was asked to see a patient in consultation with a doctor about fourteen years ago. This patient, a female aged thirty, had had severe funnel chest and scoliosis as long as she could remember, yet she had remained well until the last few months when she had complained of increasing dyspnoea and palpitation. There was obvious severe heart failure with marked dyspnoea. The heartbeat was regular at the rate of 140 and a soft systolic murmur was present at the apex. At that time I could only suggest to the experienced practitioner, who was equally puzzled, that in some way the deformity of chest and spine had caused the heart failure which was clearly present. The patient died within a few days and autopsy revealed only a dilated heart with no evidence of valvular or myocardial changes.

In November, 1946, a young man was referred to me as a case of heart disease. He had been rejected by a National Service Board in 1940, because of heart disease though he himself felt quite well. On examination, in addition to an apical systolic murmur I found that there was some apparent diffusion of the impulse caused by a moderate degree of funnel chest. The man was nervous but there was no evidence of thyrotoxicosis. My report to his doctor stated that "This type of murmur has been described in association with funnel chest when no organic heart disease is present. I have known it to be diagnosed as mitral disease and also to be queried as bacterial endocarditis because a murmur is discovered whenever the patient has a temperature from influenza or some other cause. In my opinion the man should be regarded as a normal life, for none of the signs and symptoms of organic heart disease is present." X-ray and cardiographic examinations were subsequently negative.

It seems clear from the literature that in the majority of cases funnel chest is not associated with heart failure and that heart disease is frequently erroneously diagnosed because of a systolic murmur, or the presence of other signs and symptoms. Nevertheless, when a severe degree of funnel chest is present, and especially if this be combined with deformity of the spine, symptoms of severe heart failure may ensue rather suddenly. In such cases there seems to be a tendency to marked tachycardia which does not readily respond to treatment.

REFERENCES.

[1] A. Lincoln Brown, *J. Thoracic Surg.*, 1939, ix. 164.
[2] Richard H. Sweet, *Ann. Surg.*, 1944, cxix. 922.
[3] G. W. Manning, *Canad. M. A. J.*, 1945, liii. 550.
[4] W. Evans, *Brit. Heart J.*, 1946, viii. 162.
[5] Carey F. Coombs, *Brit. J. Surg.*, 1930–31, xviii. 326.

Reviews of Books

The British Red Cross Society—Quarterly Review : Vol. 34, No. 1. January 1947.—This review is wide in its scope and full of interest. Articles with a strong appeal deal with the experiments into the nature of the " common cold " now taking place at the Harvard Hospital, Salisbury, and a review of the Convalescent Home and Auxiliary Hospital Scheme devized in 1946 by the British Red Cross Society. The Booklet is of handy size, beautifully printed and well illustrated. It should command popularity in both lay and professional circles.

Anatomical Terms : their origin and derivation. By E. J. FIELD, M.D., M.S., and R. J. HARRISON, M.B., B.Ch. Pp. vi, 163. Cambridge : W. Heffer and Sons Ltd. 1947. Price 7/6.—The authors of this little book announce their purpose as first explaining to the non-classical medical student the meaning and derivation of anatomical terms ; and secondly of offering short notes on those anatomists whose names are associated with various structures. It is not easy to appreciate exactly what is to be included and why : for example, " Ductus, (L) a duct ; Longus, (L) long ; Discus, (L) a disc," are surely unnecessary—and the last of Greek rather than Latin ancestry. " Fremitus, Scalpel, Myxoedema, Sphygmograph, Caul " have nothing to do with anatomy, nor Goethe, Wren or da Vinci with anatomical terms. " Attic, Lyra, Prussac, Gowers " and others are omitted, and " Lancisi " hides under " Stria." The non-classical will be puzzled to read on one page " Bulla = vase ", and on the next " Bulla =knob ". " Addison," an unimportant Viscount, gets eleven lines, with a footnote, " Addison, Thomas, after whom Addison's disease is named, was a different person." Is not " chord " (*e.g.* vocal) derived from " guts " via " cat-gut "—the likeness to " a string of sausages " is remote : and when an Alderman damps his ears it is certainly not to induce *vomiting*. There are some puzzling misprints, *e.g.* " Work " for " Word ", and " Bridge " for " Bridle ", appears twice !

Eye Surgery. By H. B. STALLARD, *M.B.E.*, M.D., F.R.C.S. Pp. xii, 444. Illustrated. Bristol : John Wright & Sons Ltd. 1946. Price 50s.—This book is not a complete compendium of eye operations, but a personal record of those selected by the author, from a wide experience here and abroad, as the most satisfactory in his well-considered judgement. An opening chapter discusses the eye surgeon and his training, the assistant, the operation theatre, its staff, equipment and management, drugs and dressings, pre- and post-operative treatment and nursing. Following a section on anæsthetics, the operations chosen are described with a wealth of detail appropriate to the precise nature of the subject and to the requirements of younger

surgeons, post-graduates training in eye surgery, ophthalmic house-surgeons, registrars and clinical assistants. Older surgeons, although they may in some cases vary in their ideas about certain details of technique and procedure, will read with appreciation this clear, sound and well-reasoned exposition of their handicraft. A considerable amount of space is given to the plastic repair of eyelids, and to reconstructive surgery. Here the lessons of war-surgery are effectively incorporated. The text is copiously illustrated by the author's original pencil-drawings, and he has no reason to be diffident about these on the score of artistic merit. They show clearly what he intends to convey, and it is a pleasure to see a book specially illustrated in this way, with comparatively few borrowed blocks apart from those depicting instruments. The author is to be congratulated on a notable achievement, and the publishers, who have made their usual excellent job of the production, on an important addition to their list of medical publications.

A Synopsis of Anæsthesia. By J. ALFRED LEE, M.R.C.S., L.R.C.P., M.M.S.A., D.A. Pp. viii, 254. Illustrated. Bristol: John Wright & Sons Ltd. 1947. Price 12s. 6d.—The science of Anæsthesia, having started upon its second centennium, is now undergoing a period of vigorous growth. The increasing variety of methods and of drugs, and the increasing complexity of modern apparatus, require a standard of knowledge and skill which can now be attained only by the specialist in this widening field. The inception in 1935 of a Diploma in Anæsthesia established the subject on a specialist footing, and the diploma is now a prerequisite to any worthwhile appointment in anæsthesia. It is natural, therefore, that a large number of books on anæsthesia should have been published in recent years; and not a few of them are designed to assist the D.A. candidate. This synopsis is one of the best of these, and it will be found of value as a reference book to everyone interested in the subject. It is a masterpiece of compression by a writer who has read widely and who must often have been tempted to expand. Little of importance has been omitted, and the book is well balanced on the whole, though two pages devoted to the anatomy of the rectum seems a little flatulent. Most of the sections are excellently written. That on the autonomic system is particularly valuable. The section on choice of anæsthetic for various operations is a little perfunctory, and the techniques recommended will not all command universal acceptance. The revision of the text shows evidence of haste. Davy's discovery of nitrous oxide is dated 1778, twenty years too early; the boiling point of ethylene is given as *plus* 103 degrees; the xiphisternum is in one place related to the eighth dorsal segment; the conversion factor for reading helium flow on a nitrous oxide flowmeter is incorrect; and the names of Nosworthy, Freedman and Human are misspelt. These are minor blemishes which can be removed in a subsequent edition. The high standard of the book as a whole and its undoubted value to would-be anæsthetists, as well as to those already established, should ensure that subsequent editions will be called for.

Editorial Notes

Regional Hospital Board.

THE following will serve on the local Hospital Board, No. 10 Area, South-Western Regional Hospital Area.

CHAIRMAN : Mr. H. G. Tanner (Treasurer, Bristol University).

BRISTOL : Professor R. J. Brocklehurst (Professor of Physiology, Bristol University) ; Mr. E. Cadbury (Treasurer, Bristol Royal Hospital) ; Dr. R. E. Hemphill (Psychiatrist) ; Alderman J. J. Milton (Chairman, Bristol Health Committee) ; Sir Philip Morris (Vice-Chancellor, Bristol University) ; Professor R. M. Walker (Professor of Surgery, Bristol University).

CORNWALL : Mr. C. T. Andrews (Physician, Truro) ; Mr. A. T. C. Bowden (retired Dentist, Liskeard) ; Mrs. M. F. Williams (Chairman, West Cornwall Hospital).

DEVON : Mr. C. P. Brown (Chairman, Prince of Wales Hospital, Plymouth) ; Mr. A. L. Candler (Vice-President, Devon and Exeter Hospital) ; Dr. C. J. Fuller (Physician, Exeter) ; Mrs. K. A. Goddard (Chairman, Exeter Public Health Committee) ; Mr. J. R. Makeig Jones (Chairman, Devon County Nursing Association) ; Mr. J. Marshall (Chairman, Plymouth Health Committee) ; Alderman H. G. Mason (Chairman, Plymouth Reconstruction Committee) ; Brigadier J. Morrison (Chairman, Royal Western Counties Mental Deficiency Institute, Starcross) ; Alderman Mrs. J. M. Phillips (Chairman, Maternity and Child Welfare Committee, Devon County Council) ; Mr. J. W. G. H. Riddell (Gynæcologist, Plymouth).

GLOUCESTERSHIRE : Mr. G. G. Gilmour-White (Chairman, Cheltenham Hospital) ; Mr. W. Niccol (Ophthalmic Surgeon) ; Colonel H. B. Stokes (Gloucestershire County Council).

SOMERSET : Alderman W. Barratt (Chairman, Bath Health Committee) ; Mr. S. McClements (General Practioner, Wellington) ; Mr. S. C. Morland (Chairman, Somerset Public Health Committee) ; Mr. P E. Russell (Chairman, Weston Hospital) ; Miss R. C. Shackles (Matron, Royal United Hospital, Bath).

WILTSHIRE : Miss M. F. Awdry (Vice-Chairman, Visiting Committee, Wilts County Council Mental Hospitals Association).

The Composition of the Board gives general satisfaction. The appointment of Mr. H. G. Tanner as Chairman is particularly

welcome. All regions are represented and the members have such experience of Hospital Administration that leaves little room for doubt that they will carry out their work with distinction.

* * * * *

German Educational Reconstruction

WE have received an appeal to our readers for books, pamphlets, periodicals and educational equipment for Germany: "Germany has been culturally isolated for the past fourteen years. The need for books and periodicals is desperate, particularly those dealing with educational, technical, political and economic subjects. Many people have a spare book or two on their bookshelves, or periodicals, for which they have no further use." Anyone wishing to help should write to the Secretary, G. E. R., 15 James Street, Long Acre, London, W.C.2.

Non-Editorial Note

Twenty-first Birthday.

IN the nature of things it must be, if not unprecedented, at least very rare for one man to occupy the editorial chair of a medical journal for twenty-one years. Yet we are reminded that Professor J. A. Nixon was elected to that honourable, if onerous position, in the spring of 1926. This was immediately after we signalized recovery from the ravages of war in a larger page, larger type, and better paper: fit preparation for the development which ensued. Few indeed are the opportunities for a provincial medical paper to enjoy such illuminating and experienced guidance. Three events of particular importance has our *Journal* recorded during the period: the centenary of the Bristol Medical School, the bi-centenary of the Royal Infirmary, and the Jubilee of the *Journal* itself. Each of these received special treatment largely from the Editors' hands, the last being the occasion for the fifty-year Index.

Like his predecessor, the Editor has had the heavy task of guiding the *Journal* through the vicissitudes of a world war. His was probably the heavier task—the bombing of Bristol, severe rationing of paper and (not least), the complete cessation of meetings by the Society made it, at times, almost insuperable.

It may be of some interest to compare how the *Journal* fared under the stresses of two wars.

Year	Issues	Pages	Issues		Pages		
			Total	Average per year	Total	Average per issue	Average per year
1915	3	234	11	2+	766	69	153
1916	2	205					
1917	3	141					
1918	3	186					
1919							
1920	4	245	9	3	538	60	179
1921	3	175					
1922	2	118					
1940	2	142	9	1.5	476	53	79
1941	2	104					
1942	2	84					
1943	1	50					
1944	1	46					
1945	1	50					

Observe that four years passed after the first world war before the *Journal* really recovered from its effects : in 1923 the present Editor's Presidential Address heralded the return to regular quarterly issues. But the 1919 issue contained an announcement that the subscription would be raised for 1920, followed shortly by the rise of subscription for membership of the Society to one-and-a-half guineas—part of " the price of victory." This time the storm has been more severe while it lasted, and the increase in cost of production proportionately greater, but we trust the return to quarterly issues will not again prove premature.

Obituary

STANTON BRYAN ADAMS, M.B., Ch.B., B.Sc., Ph.D. (Bristol). STANTON BRYAN ADAMS was born in Bristol in 1904. He was educated at the Bristol Grammar School and the University of Bristol. He entered the Science Faculty in 1922 and graduated B.Sc. with 1st Class Honours in Zoology in 1925. He continued his work in the Department of Zoology and in 1928 was awarded his Ph.D. for a thesis on "The Cervical Nerves of the Platysma in Marsupials." He now realized that his real interest lay in medicine and he entered the Faculty of Medicine in 1928 and qualified M.B., Ch.B. in 1933. During his student career he played a very active part in the work of the Spelaeological Society. In this work he made full use of his training in zoology and earned a considerable reputation in archaeological circles.

After holding various house appointments, he became interested in Radiology and spent a period at the Royal Cancer Hospital, London, studying for the D.M.R. It was here that he became keenly attracted by Radiotherapy to which he subsequently devoted all his interests. Returning to Bristol in 1937 he threw himself body and soul into the work of the recently instituted Radiotherapy Department. Bryan Adams was a real doctor, and to him the best interest of the patient was his only consideration. No detail that might help his patient was too small for him to consider and he never spared himself in his work for them. One of his few complaints during his last illness was the regret he voiced, that he would never be able to let his patients benefit from the experience and knowledge that he gained from his own suffering. Despite the heavy work which the development of the department entailed and the frustration and difficulties occasioned by the war, he still found time to engage in several valuable research problems in radiotherapy.

A loyal and enthusiastic alumnus of his University, he watched its development with great interest. Perhaps as a result of having worked in the Faculties both of Science and Medicine he frequently deplored the tendency of the different faculties to become separate and rather isolated entities. He spent many hours discussing and planning means by which this might be overcome in the bright future which he foresaw for the University and in which he had hoped to play a part.

Bryan Adams had several hobbies. He was an artist in black and white of considerable ability and during the latter years of the war discovered the "scraper board" and became very proficient in this medium. He was a keen and enthusiastic photographer, and obtained much enjoyment in his garden at Maralon Wood. He was a staunch and loyal friend and a good companion in the fullest sense of the term on all and every occasion.

His premature death is a grievous loss to the Royal Hospital, the Region and the University, which all could ill afford. He leaves a widow and two young children to whom we extend our deepest sympathy.

Meetings of Societies

Bristol Medico-Chirurgical Society

THE seventh meeting of this Society was held on Wednesday, April 9th. Professor Alan Moncrieff gave a stimulating address entitled "**Child Health.**" He recounted some of the failures in this field as seen in this country of late years, giving it as his opinion that inadequacy in training in Paediatrics and the failure of co-operation between Public Health and Hospital sides of the service had been largely responsible. He recounted improvements which had occurred in various cities of the country during the past few years, and appealed for further co-operation and for better educational facilities in the future.

The eighth meeting was held on Wednesday, May 14th. A combined paper entitled "**The Rhesus Factor**" was then delivered by Dr. B. Corner and Dr. Tovey. The latter discussed the pathological factors involved and the former the clinical aspects and methods of treatment. The results of upward of fifty local cases were given.

The Medical Library of the University of Bristol

WITH WHICH IS INCORPORATED

The Library of the Bristol Medico-Chirurgical Society.

The following donations have been received since the publication of the list in the last issue.

Mrs. F. M. Adams (1)	56 volumes and pamphlets on radiology.
H. Chitty, Esq. (2)	1 volume.
General Medical Council (3)	5 volumes.
Dr. H. S. Heller (4)	3 volumes.
Mayo Clinic (5)	4 volumes.
Dr. T. Milling (6)	80 volumes.
Wallace and Tiernan Ltd. (7)	1 volume.
Professor R. Milnes Walker (8)	10 volumes.

Unbound periodicals have also been received from Dr. C. D. Evans, Dr. T. Milling, Professor C. Bruce Perry, Professor R. Milnes Walker, and Messrs. John Wright and Sons, Ltd.

THE ONE HUNDRED AND EIGHTY-FOURTH LIST OF BOOKS.

The figures in round brackets refer to the figures after the names of the donors. The books to which no such figures have been attached have either been bought from the Library Fund or received through the Journal.

Adriani, J.	*Chemistry of Anaesthesia*		1946
Barcroft, Sir J.	*Researches on Pre-natal Life*	Vol. 1	1946
Belding, D. L.	*Textbook of Clinical Parasitology*		1942
Browne, O'D. T. D.	*The Rotunda Hospital, 1745-1945*		1947
Comrie, J. D.	*Black's Medical Dictionary*	18th Ed.	1946
Conant, N. F. and others	*Manual of Clinical Mycology*		1946
Dilling, W. J. and Hallam, S.	*Dental Materia Medica, Pharmacology and Therapeutics*	3rd Ed.	1946
Dodson, A. I.	*Synopsis of Genito-urinary Diseases*	4th Ed.	1945
Dunlap, F. L.	*White versus Brown Flour*	(7)	1945
Fairbrother, R. W.	*Textbook of Bacteriology*	5th Ed.	1946
Frazer, J. E.	*Anatomy of the Human Skeleton*	4th Ed.	1946
Garrod, A. E. and others	*Diseases of Children*	Vol. 1. 4th Ed.	1947
General Medical Council	*Recommendations as to the Medical Curriculum*		1947
Gibbens, J.	*The Care of Young Babies*	2nd Ed.	1946
Glasser, O. and others	*Physical Foundations of Radiology*		1947
Hale-White, W.	*Materia Medica, Pharmacy, Pharmacology and Therapeutics*	26th Ed.	1946
Harrison, G. A.	*Chemical Methods in Clinical Medicine*	3rd Ed.	1947
Hinshelwood, C. N.	*Chemical Kinetics of the Bacterial Cell*		1946
Horder, Lord (Ed.)	*British Encyclopaedia of Medical Practice: Medical Progress* 1947*: Cumulative Supplement* 1947		1947
International Labour Office	*The Training and Employment of Disabled Persons*	(2)	1945
Johnston, T. B.	*Synopsis of Regional Anatomy*	5th Ed.	1945
Lawrence, R. D.	*The Diabetic A.B.C.*	9th Ed.	1946
Lea, D. E.	*The Action of Radiations on Living Cells*		1946
Lee, J. A.	*Synopsis of Anaesthesia*		1947
McDowall, R. J. S.	*Handbook of Physiology and Biochemistry*	39th Ed.	1946
McGregor, A. L.	*Synopsis of Surgical Anatomy*	6th Ed.	1946
Mach, R. S.	*Les Troubles du Métabolisme du sel et de l'eau*		1946
Moncrieff, A., and Thomson, W. A. R. (Ed.)	*Child Health*		1947
Peters, J. P. and Van Slyke, D. D.	*Quantitative Clinical Chemistry,* Vol. 1. *Interpretations*	2nd Ed.	1946
Pinner, M.	*Pulmonary Tuberculosis in the Adult*		1945
Purves-Stewart, J.	*Diagnosis of Nervous Diseases*	9th Ed.	1947
Robertson, E. G.	*Further Studies in Encephalography*		1946
Rolleston, H. and Moncrieff, A. (Ed.)	*Modern Anaesthetic Practice*	2nd Ed.	1946
Sequeira, J. H., and others	*Diseases of the Skin*	5th Ed.	1947
Stallard, H. B.	*Eye Surgery*		1946
Stevenson, R. S.	*Morell Mackenzie*		1946

TRANSACTIONS, REPORTS, JOURNALS, ETC.

Annals of Medical History Index. 1917-1942 1946
Collected Papers of the Mayo Clinic. Vols. 5–8 .. .. .. (5) 1913–1916
Dentists' Register, 1947 .. .. (3) 1947
Farmacoterapia Actual. Vols. 1–3 .. .. (4) 1944–1946
Journal of Thoracic Surgery. Vols. 6–15 .. .. (8) 1937–1946
Medical Register, 1947 .. .. (3) 1947
Minutes of the Dental Board of the United Kingdom. Vols. 22–24 (3) 1943–45
Yearbook of Dermatology and Syphilology, 1945 1945
Yearbook of General Medicine, 1945; 1946 1945–1946
Yearbook of General Surgery, 1945; 1946 1945–1946
Yearbook of Neurology, Psychiatry and Endocrinology, 1945 1945
Yearbook of Obstetrics and Gynecology, 1946 1946
Yearbook of Pediatrics, 1946 1946
Yearbook of Urology, 1945; 1946 1945-1946

Publications Received

From MESSRS. JOHN WRIGHT & SONS, LTD.:

A synopsis of anaesthesia. By J. ALFRED LEE, M.R.C.S., L.R.C.P., M.M.S.A., D.A. Price 12s. 6d. 1947.

Massage and remedial exercises in medical and surgical conditions. By NOEL M. TIDY. 7th Edition. Price 25s. 1947.

From OXFORD UNIVERSITY PRESS:

Heparin in the treatment of thrombosis. By J. ERIK JORPES, M.D. 2nd Edition. Price 18s. 1946.

Elements of surgery. By FAUSET WELSH, B.Sc., M.B., F.R.C.S. Price 7s. 6d. 1947.

From MESSRS. H. K. LEWIS & CO., LTD.:

A textbook on the nursing and diseases of sick children. Edited by ALAN MONCRIEFF, M.D., F.R.C.P. 4th Edition. Price 30s. 1947.

Clinical examination of the nervous system. By G. H. MONRAD-KROHN, M.D., F.R.C.P. 8th Edition. Price 16s. 1947.

From MESSRS. W. HEFFER & SONS, LTD.

Anatomical terms: their origin and derivation. By E. J. FIELD, M.D., M.S. and R. J. HARRISON, M.A., M.B., B.Chir. Price 7s. 6d. 1947.

Local Medical Notes

BRISTOL UNIVERSITY.

The following appointments have been made: *Professor of Child Health*, Albert Victor Neale, M.D., F.R.C.P., D.P.H. *Lecturer in Forensic Medicine.*—C. R. Gibson, M.B., Ch.B. *Lecturer in Children's Dentistry.*—J. H. Glen, L.D.S. *Clinical Teacher in Radiology.*—J. P. Raban, M.R.C.S., L.R.C.P., D.M.R.E. *Clinical Teacher in Fevers.*—James Macrae, M.D., F.R.F.P.S., D.P.H. *Recognised Teacher for Health Visitors Training Course.*—A. L. Smallwood, M.B., Ch.B., D.C.H., D.P.H. *Additional Medical Officer to the University.*—B. W. Davy, M.B., B.S.

EXAMINATION RESULTS.

University of Bristol.—Students of the University have recently passed the following examinations:—

M.B., Ch.B.—*First Examination:* F. J. Applebe, K. J. Barker, D. F. Brittain, Sheila F. Carey, B. J. F. Coles, P. A. Crook, R. W. Digby, H. G. Gage, E. C. Gawthorn, E. P. Hamblett, G. P. Lowther, Violet E. Marsden, Sheila A. Martyn, M. N. Pritchard, T. D. Richards, N. G. Sanerkin, P. H. Sherwood, H. S. Smith, D. W. G. Stone, J. E. Tovey, H. A. P. Walker. *In Organic Chemistry and Physics (completing the Examination):* Anne W. Christie.

M.B., Ch.B.—*Second Examination:* T. E. Dada, M. E. Hincks, G. W. B. Peel, G. A. Pilkington, Mildred M. C. Shaw. *In Section II (completing the Examination):* R. J. Ancill, (Mrs.) Helena B. M. Bailey, P. J. D. Benjafield, Monica B. Bishop, H. J. Bland, K. A. Boulton, Margaret H. Buston, C. E. Dickson, Dorothy R. Douglas, E. R. Duchesne, W. A. W. Dutton, Doreen A. Ellis, Luba Epstejn, B. R. W. Evans, (Mrs.) Hella R. Fluss, Z. Fluss, R. F. Harvey, R. Hill, E. A. W. Houghton, J. A. Jefferies, H. I. Leigh, Jean M. Liell, H. Maxwell, J. Oates, Barbara M. Philpott, J. F. Rowland, Rachel D. R. Sasieni, M. Sheldrick, (Mrs.) Antonina J. Sidorowicz, L. P. Spence, D. T. I. Stuttaford, Marianne A. Taylor, Ginette M. Tebbutt, P. A. Titterton, L. A. D. Tovey, M. D. Turner, Joan Walker. *In Section I only:* S. H. Brown, Megan D. M. Johnson, J. H. Scudamore, Patricia Vowles.

M.B., Ch.B.—*Final Examination:* C. A. Mills (with Second Class Honours, Distinction in Medicine and in Public Health), G. F. Bigwood (with Distinction in Obstetrics), F. G. Bolton, W. L. Codd, Margaret J. Cox, W. J. Gall (with Distinction in Surgery), G. J. S. Herdman, Stella C. Hill (with Distinction in Obstetrics), J. A. G. Holt (with Distinction in Public Health), Mary Knowles, Lisa E. Mandelbaum, G. E. Mitchelmore, W. H. N. Moore, G. G. Portch (with Distinction in Surgery and in Public Health), E. Saphier, (Mrs.) Patricia M. Valentine, M. H. Weiss. *In Group II:* Patricia M. Appleton. *In Group I only:* (Mrs.) Elizabeth H. Chard, C. E. Halliday, Kathleen C. Iles. *In Group II only:* Catherine M. Hoyle.

M.B., CH.B.—*Final Examination (Section I):* Barbara Brosnan, R. J. Carey, Suzanne K. R. Clarke, Anne B. Cousins, Eudora M. R. Davies, Vera H. M. Dowling, D. N. Fitzgerald, Molly I. Govier, B. T. Hale, Pamela I. Hannaford, Kathleen J. Harrison, Catherine M. Hoyle, Mary Knowles, A. J. Lee, A. H. Levy (with Distinction in Materia Medica, Pharmacy, etc., and in Pathology and Bacteriology), C. D. Linton, J. S. R. R. Old, D. B. Peacock, Jenny Pym, F. A. A. Ruggeri, G. T. Salter, A. S. Wallace.

B.D.S.—*First Examination:* I. Apter, B. G. Bennett, K. R. Cowles, Joan M. Flint, R. L. Griffiths, J. G. J. Keene, J. H. Marshall, R. T. Platt, Michalina B. Pyzik, R. K. M. Sanders, J. K. Vowles, G. C. B. Winter. *In Biology (completing the Examination):* A. Sander. *In Physics (completing the Examination):* J. P. Fletcher, C. H. Thomas.

B.D.S.—*Second Examination:* A. H. Chivers, Ruth A. Yearn.

B.D.S.—*Third Examination:* J. S. Cooper. *In Dental Anatomy only:* D. C. Berry (with Distinction).

B.D.S.—*Final Examination. In Section II (Dental Surgery):* G. K. G. Jennings. *In Section I only:* L. K. Walden.

L.D.S.—*Second Examination:* G. D. Everard, H. T. Jones, E. K. Joseph, G. D. Pamely, J. J. Tittle.

L.D.S.—*Third Examination:* J. P. B. Pengelly, J. T. Sanders. *In Dental Anatomy (completing the Examination):* H. Sheffield. *In Dental Anatomy only:* Ruth Heller.

L.D.S.—*Final Examination. In Section II (Dental Surgery):* R. J. Brownlee, T. C. Hughes, W. Watson. *In Section I only:* J. C. Fishpool.

D.P.H—.*Part II:* Joyce W. Brown, A. Donaldson, Clara J. Fraser, A. T. Hunt, S. Ludkin, D. G. MacNeill, Joan Williams.

D.P.M.—*Part I:* B. F. Martin, J. R. Stuart, L. B. Thomas. *In Anatomy and Physiology of the Nervous System (completing the Examination:* W. L. Jones. *In Psychology (completing the Examination):* H. E. D. Flack, W. A. Heaton-Ward, H. A. Sutherland. *In Anatomy and Physiology of the Nervous System only:* A. Esterman, I. A. Macdonald. *In Psychology only:* M. W. Annear, I. M. Davies.

D.P.M.—*Part II:* G. M. Gibb, E. C. Kite, J. McGhie, J. F. D. Murphy.

HONOURS.

Congratulations are due to several of our old friends for honours conferred upon them.

Surgeon Vice-Admiral Henry St. Clair Colson, C.B., C.B.E., M.B., B.S., D.P.H., formerly S.R.A. at Barrow Gurney Hospital, who has been made K.C.B.

Colonel P. G. Stock, C.B., F.R.C.P., who has been made a C.M.G.

Dr. T. S. Hele, M.D., F.R.C.P., Master of Emmanuel College and Vice-Chancellor of Cambridge University, upon whom the King of Norway has bestowed the Order of St. Olaf, for his services to the Norwegians in Britain during the war.

Sir Lionel Whitby, C.V.O., M.D., F.R.C.P., Regius Professor of Physic at Cambridge University, who has been appointed Master of Downing College.

NEW BOOKS and NEW EDITIONS

COMMON SKIN DISEASES.
By A. C. ROXBURGH, M.D., F.R.C.P. Eight Edition. Eight coloured plates and 212 illustrations in the text. Demy 8vo. **21s.** net; postage **9d.**
(Just Published.)

LAW RELATING TO HOSPITALS AND KINDRED INSTITUTIONS.
By S. R. SPELLER, LL.B. Demy 8vo. **22s. 6d.** net; postage **9d.**

TEXTBOOK OF OBSTETRICS.
By G. I. STRACHAN, M.D., F.R.C.P., F.R.C.S., F.R.C.O.G. Three coloured plates and 323 illustrations in the text. Royal 8vo. **45s.** net.

CLINICAL EXAMINATION OF THE NERVOUS SYSTEM.
By G. H. MONRAD-KROHN, M.D., F.R.C.P., M.R.C.S. Eighth Edition. 126 illustrations in plates and the text. Crown 8vo. **16s.** net; postage **7d.**

BLIND INTUBATION AND THE SIGNS OF ANAESTHESIA.
By J. U. HUMAN, M.R.C.S., L.R.C.P., L.D.S., R.C.S.Eng. Third Edition. 60 illustrations. F'cap. 8vo. **10s.** net; postage **5d.**

Obtainable from all Booksellers

London: H. K. Lewis & Co. Ltd.
136 GOWER STREET · W.C.1
Telephone :—EUSton 4282 (5 lines)

Bristol Medico-Chirurgical Journal.

NOTICE TO CONTRIBUTORS.

Illustrations should always be supplied ready for reproduction. All re-touching or other operations required will be charged to the Author. Line drawings should be drawn in Indian ink.

Authors of original articles are entitled to receive twenty-five Reprints, with covers showing source of Reprint free of charge. Additional Reprints may be obtained at the following rates (*provided notice is given at the time of returning proofs*) :—

ADDITIONAL COPIES.

(*a*) With cover showing source of Reprint (no name or title) ..	25 copies, 8 pages,	**6/6**	16 pages,	**11/6**
	50 „ „	**10/-**	„	**19/-**
(*b*) With special cover (showing source of Reprint, Author's name and title of paper)	25 „ „	**16/-**	„	**21/-**
	50 „ „	**22/-**	„	**31/6**

Illustrations.—For 25 copies of one page, **1/-** extra. For 50 copies of one page, **2/-** extra.

NOTE.—Contributors requiring special Covers on their free Reprints may obtain same at the following rates :—

Cover showing source of Reprint and Author's name and title of article	25 copies, **9/6**	50 copies, **11/6**